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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,252

04/20/2007

A. Paul Alivisatos

IB-2012

6279

8076

7590

10/05/2010

LAWRENCE BERKELEY NATIONAL LABORATORY
Technology Transfer & Intellectual Property Managem
One Cyclotron Road MS 56A-120
BERKELEY, CA 94720

EXAMINER

RAO, G NAGESH

ART UNIT

PAPER NUMBER

1714

MAIL DATE

DELIVERY MODE

10/05/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,252	Applicant(s) ALIVISATOS ET AL.	
	Examiner G. NAGESH RAO	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1) Claim 32 is objected to because of the following informalities: In the filed claim amendment set there are two "claim 32's". Appropriate correction is required.

Priority

2) The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/5555590, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. In particular the language regarding the nanocrystal shell thickness of at least .5nm to 100nm or a majority of the materials selected as potentially being the nanocrystal

shell. As well the methodology steps employed for fabrication of the nanocrystal shell, is not adequately supported in the provisional application

Specification

3) The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4) Claims 1 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Examiner is unable to locate in applicant's specification support for the language discerning "not comprised of discrete molecular sheets" in relation to the structure of the hollow nanocrystal.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5) Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Caruso et al "Nanoengineering of Inorganic and Hybrid Hollow Spheres by Colloidal Templating".

Caruso et al clearly disclose a hollow silica nanocrystal comprising a nanocrystal shell having a thickness that falls within a .5 nm and 100 nm range, and lacking a core while not being comprised of discrete molecular sheets (See Pp. 1111-1113).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6) Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow (US Pg Pub. 2006/0279905).

Chow 905 clearly disclose a hollow nanocrystal (i.e. nanofibers) comprising a nanocrystal shell having a thickness and diameter dimensions that falls within a .5 nm and 100 nm range, and lacking a core while not being comprised of discrete molecular sheets and having a shape that may be spherical, disk, or branch shaped (Section 0054-0056 and 0074-0076). Furthermore materials selected include ZnO, ZnS, CdS, or CdSe for example which are binary and ternary based compounds (Section 0080-0083), whereby a variety of processes are taught in fabrication of the core-less hollow nanocrystal shell comprising of oxide or sulfur based compounds in order to facilitate fabrication of a sulfide or oxide based nanocrystal from the resulting use of a CVD process (See Sections 0086-0096).

Response to Arguments

7) With respect to the applicability of the USC 112 1st paragraph rejections, examiner has reviewed the arguments and must respectfully disagree. The evidence put forth may suggest or imply support, but nothing in the written specification is in full detail that one having ordinary skill in the art would actually ascertain comprehensively. Especially since this is a negative limitation, full comprehensive

support for this limitation is pertinent. Thus examiner must respectfully maintain the position of this rejection at this time.

With respect to the applicability of the Caruso et al 102(b) reference directed to claims 1-3, there is no mention that the claim sequence is a “single step”, and there is no evidence to show that the layers are not comprised of discrete molecular sheets. Applicant has not provided evidence that Caruso’s et al reference actually states such a thing, but rather infers based on the teaching.

With respect to the applicability of Chow 905, examiner points to the effective filing date which via two continuation applications goes back to a provisional application 60/554,549 filed on 3/18/2004, which effectively pre-dates applicant’s application by 4 days. Since no further remarks were submitted on the applicability of the content of the prior art, it is the examiner's position that the reference is applicable as a 102(e) prior art rejection.

Conclusion

8) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. NAGESH RAO whose telephone number is (571)272-2946. The examiner can normally be reached on 8:30AM-5PM (INDEPENDENT FLEX SCHEDULE).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael KORNAKOV can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. Nagesh Rao/
Art Unit 1714
Patent Examiner

/Robert M Kunemund/

Primary Examiner, Art Unit 1714